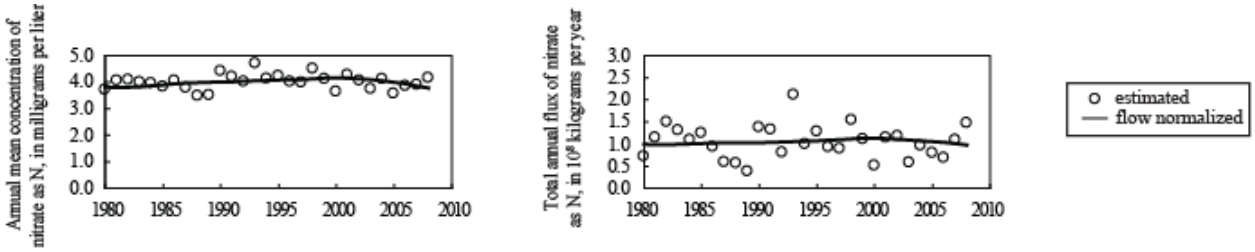
Illinois River at Valley City, IL

Flow-normalized nitrate concentration and flux

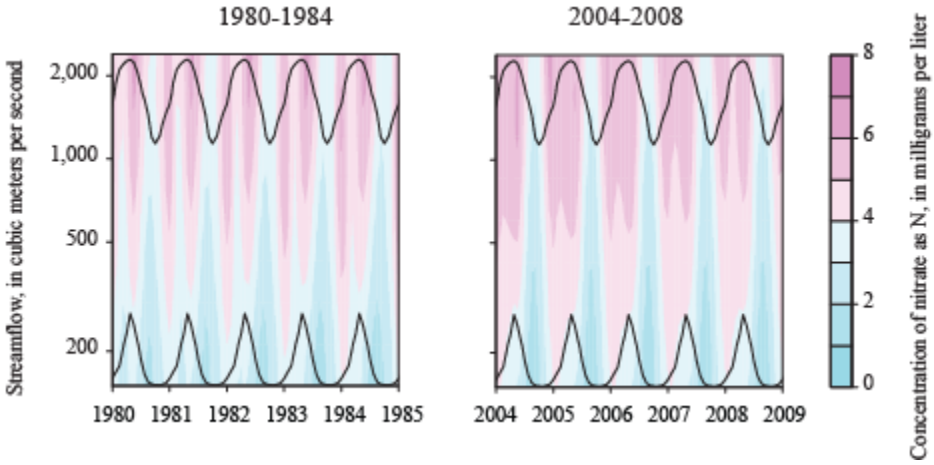
Percentage changes in flow-normalized nitrate concentration and flux between 1980 and 2008 were small (-1 and -1%, respectively) at Illinois River at Valley City, IL. Notably, this site was among those with the highest flow-normalized concentration and yield (flux per unit area) in 1980. Flow-normalized concentration and flux decreased slightly between 2000 and 2008 after remaining relatively stable between 1980 and 2000.



EXPLANATION: Estimated concentration and flux are strongly influenced by changes in climate and streamflow. For example, concentration and flux of nitrate are different during floods than during droughts. Flow-normalized concentration and flux are independent of changes in streamflow, so they can provide greater insight into the effects of conservation practices and other changes in the watershed.

Comparison of nitrate concentrations over time and with streamflow

Nitrate concentrations at Illinois River at Valley City changed very little between the early 1980s and mid 2000s at all streamflows, and the direction of change was mixed among seasons.



EXPLANATION: These contour plots show model estimates of concentration as a function of time and streamflow for two 5-year snapshots in time—an early period from 1980 to 1984 and a recent period from 2004 to 2008. Any vertical line shows how concentration would have varied with streamflow on a particular day of a particular year; any horizontal line shows how concentration would have varied over time (seasonally and annually) at a particular streamflow. Because the probability distribution of streamflow changes from day to day, smoothed estimates of the 5th and 95th percentiles of streamflow on each day are plotted as black lines.

Map of sampling location:
http://waterdata.usgs.gov/nwis/nwismap/?site_no=05586100&agency_cd=USGS

Link to water-quality data:
http://infotrek.er.usgs.gov/nasqan_query